

THAT WHICH IS CLAIMED:

1. A substantially oil-free closure cap liner or gasket composition comprising a blend of a thermoplastic elastomer, polybutylene and polyisobutylene.
2. The composition of Claim 1 further comprising a microcrystalline wax.
3. The composition of Claim 1 wherein said blend comprises, by weight, between approximately 40 to 70 parts thermoplastic elastomer, approximately 15 to 30 parts polyisobutylene and approximately 10 to 35 parts polybutylene.
4. The composition of Claim 1 wherein said blend comprises, by weight, approximately 65 parts thermoplastic elastomer, approximately 20 parts polyisobutylene and approximately 15 parts polybutylene.
5. The composition of Claim 2 wherein said blend comprises, by weight, approximately 65 parts thermoplastic elastomer, approximately 20 parts polyisobutylene, approximately 15 parts polybutylene and approximately 4 parts microcrystalline wax.
6. The composition of Claim 1 wherein said thermoplastic elastomer comprises a polyolefin, a butyl-based rubber and a lubricant.
7. The composition of Claim 1, wherein said composition exhibits a 100% modulus of greater than approximately 280 psi, a percent elongation of greater than approximately 400 and a tensile strength of greater than approximately 500 psi.
8. A closure comprising;  
a plastic shell having an end panel and an integral skirt downwardly extending from the periphery thereof;

said end panel having an inner surface;  
a substantially oxygen impermeant liner  
adhered to at least a portion of said inner  
surface, wherein said liner comprises a blend of a  
5 thermoplastic elastomer, polybutylene and  
polyisobutylene.

9. The closure of Claim 8 wherein said  
thermoplastic elastomer comprises a polyolefin, a  
butyl-based rubber and a lubricant.

10 10. The closure of Claim 8 wherein said  
thermoplastic elastomer comprises a block copolymer.

11. The closure of Claim 8 wherein said blend  
comprises, by weight, approximately 40 to 70 parts  
thermoplastic elastomer, approximately 15 to 30 parts  
15 polyisobutylene and approximately 10 to 35 parts  
polybutylene.

12. The closure of Claim 11 wherein said blend  
comprises, by weight, approximately 65 parts  
thermoplastic elastomer, approximately 20 parts  
20 polyisobutylene and approximately 15 parts  
polybutylene.

13. The closure of Claim 8 wherein said blend  
further comprises a microcrystalline wax.

14. The closure of Claim 13 wherein said blend  
25 comprises, by weight, approximately 65 parts  
thermoplastic elastomer, approximately 20 parts  
polyisobutylene, approximately 15 parts polybutylene  
and approximately 4 parts microcrystalline wax.

15. The closure of Claim 8 wherein said liner  
30 comprises a flat disk disposed over substantially the  
entire inner surface of said end panel.

16. The closure of Claim 8 wherein said liner  
comprises an annular ring disposed over the peripheral  
portion of the inner surface of said end panel..

17. The closure of Claim 15 wherein said liner comprises an interior portion and a peripheral portion, said peripheral portion having a thickness greater than said interior portion.

5        18. The closure of Claim 17 wherein said peripheral portion has a thickness of approximately 0.030-0.035 inches.

10        19. The closure of Claim 17 wherein said interior portion has a thickness of approximately 0.010-0.015 inches.

20. The closure of Claim 8 wherein said liner exhibits an average oxygen ingress rate of less than 14.0 cc/m<sup>2</sup>/day.

15        21. The container closure of Claim 8 wherein said liner exhibits an average oxygen ingress rate of approximately 4.0-8.0 cc/m<sup>2</sup>/day.

22. A method for providing a liner for a container closure comprising:

20        combining a thermoplastic elastomer with selected amounts of polyisobutylene and polybutylene;

      mixing said thermoplastic elastomer with said polyisobutylene and said polybutylene to provide a blend; and

25        forming said blend into a circular liner.

23. The method of Claim 22 further comprising adding a microcrystalline wax prior to forming said blend into said liner.

30        24. The method of Claim 22 comprising combining said thermoplastic elastomer with said polybutylene prior to adding said polyisobutylene.

25. The method of Claim 22 comprising:  
      providing a thermoplastic elastomer;  
      combining polyisobutylene with said elastomer;

adding said polybutylene to said combination of elastomer and polyisobutylene.

26. The method of Claim 22 wherein said combining and mixing are carried out at a temperature not  
5 exceeding 225°C.

27. The method of Claim 26 wherein said combining and mixing are carried out at a temperature of approximately 180°C.

28. The method of Claim 22 comprising combining,  
10 by weight, approximately 40 to 70 parts thermoplastic elastomer with approximately 15 to 30 parts polyisobutylene and approximately 10 to 35 parts polybutylene.

29. The method of Claim 22 comprising adding  
15 approximately 4 parts of said microcrystalline wax to said blend.

30. The method of Claim 29 comprising combining, by weight, approximately 65 parts thermoplastic elastomer, approximately 20 parts polyisobutylene,  
20 approximately 15 parts polybutylene and approximately 4 parts microcrystalline wax.

31. The method of Claim 22 further comprising forming said blend into said liner by injection molding or cold punch molding.

25 32. The method of Claim 22 comprising first combining polyisobutylene with an anti-blocking talc prior to adding said thermoplastic elastomer and said polybutylene.